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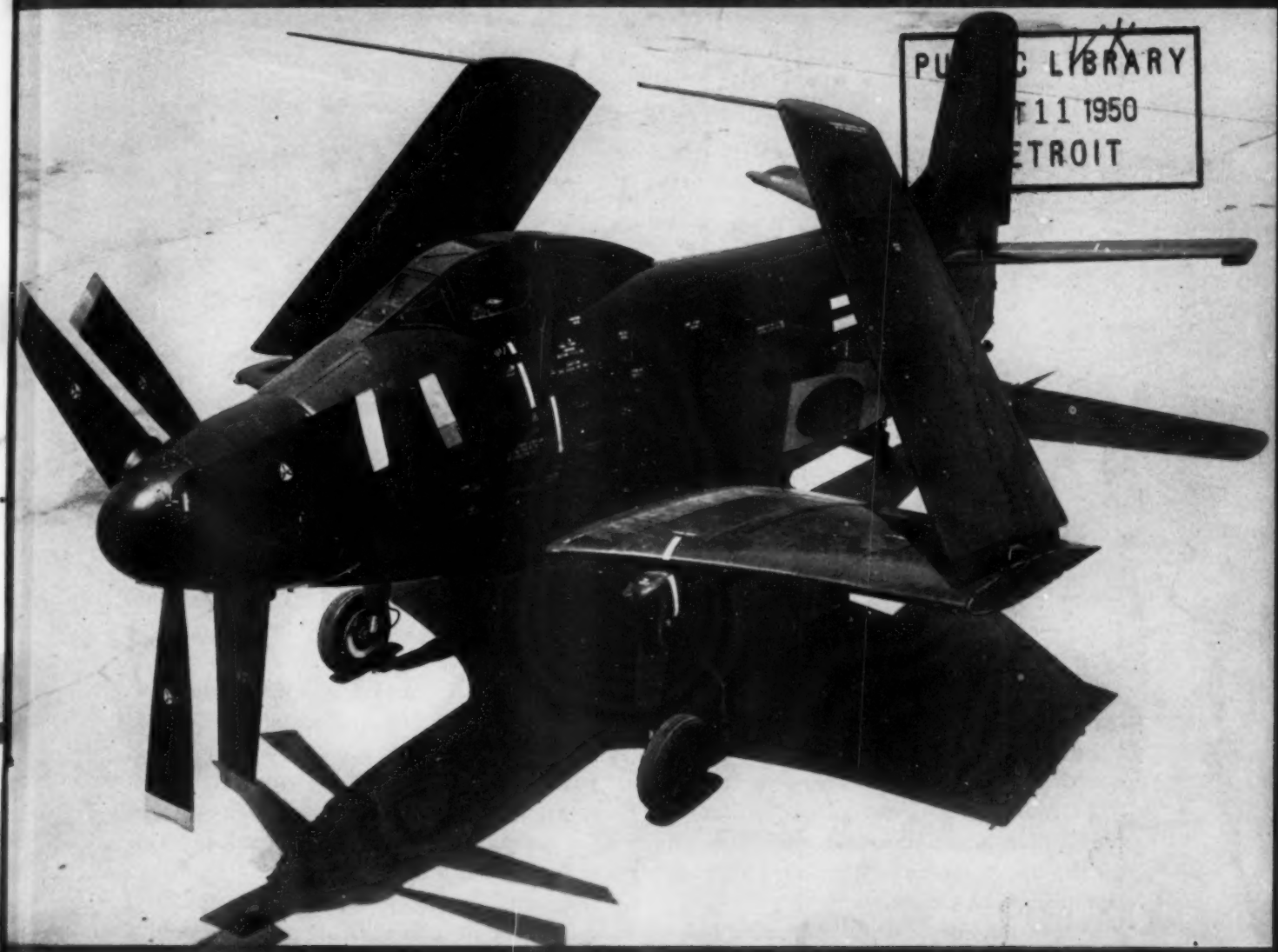
October 7, 1950

SCIENCE NEWS LETTER

THE WEEKLY SUMMARY OF CURRENT SCIENCE



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See Page 235

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MEDICINE

Pneumonic Plague Danger

There exists a danger now of an outbreak of pneumonic plague unless it is spotted and treated early. Gland diseases of the groin or armpit regions are indicators.

➤ DOCTORS in 15 western states should suspect plague in any case of disease in the lymph glands of the groin or armpit regions, Dr. Vernon B. Link of the U. S. Public Health Service's western communicable disease center at San Francisco, warns in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION in Chicago (Sept. 30).

He foresees danger of an outbreak of pneumonic plague with serious loss of life unless plague is suspected, diagnosed and treated early.

Penicillin, famous mold remedy effective in many diseases, "has no value whatsoever in the treatment of human plague," Dr. Link also warns.

In two recent cases in which penicillin was the only drug given, the patients both died, he reports.

Streptomycin and sulfadiazine are the treatment of choice and should be started immediately "even when only a possibility exists that the disease is plague," he states. In one case, he reports, the use of these two drugs "produced an immediate, dramatic, life-saving effect in a moribund patient who most certainly would have died without such treatment."

The 15 western states in which plague danger exists for humans are: California, Oregon, Montana, Idaho, Nevada, Utah, Wyoming, Washington, Arizona, New Mexico, Colorado, North Dakota, Oklahoma, Kansas and Texas. Plague infected rodents, such as rats and ground squirrels have been found in all these states, constituting a reservoir of infection that may spread to man.

From July, 1949, through July, 1950, five cases of plague and 13 more suspected cases have occurred. This figure is considerably above previous averages and is one reason for Dr. Link's warning. Another reason is that two of the five cases occurred in counties of New Mexico in which wild rodent plague had never been found before.

Plague cases at present are sporadic and are of the bubonic type. But Dr. Link warns that a case of pneumonic plague might develop at any time and could give rise to a serious outbreak because this kind of plague spreads directly from person to person and therefore is much harder to control than bubonic plague which spreads via rodent fleas.

Science News Letter, October 7, 1950

MEDICINE

Smoking in Lung Cancer

Arsenic from insecticides used to protect the tobacco plants may be the chemical in tobacco smoke which causes cancer. Inhaling does not seem to make any difference.

➤ SMOKING is an important factor in causing cancer of the lung, two medical scientists conclude from a study reported to the BRITISH MEDICAL JOURNAL (Sept. 30).

Arsenic in insecticides used to protect the tobacco plants may be the chemical in the tobacco smoke that causes the cancer, they suggest.

The scientists are Dr. Richard Doll of the statistical research unit of the Medical Research Council and Dr. A. Bradford Hill, honorary director of the same unit and professor of medical statistics at the London School of Hygiene and Tropical Medicine.

Their conclusions about the part smoking, especially cigarette smoking, plays in causing cancer are based on studies of the smoking history of 1,732 patients with cancer of the lung, stomach or large bowel and 743 general medical and surgical patients who did not have cancer. Of the cancer patients, 649 men and 60 women had cancer of the lung.

Among the lung cancer patients 0.3% of the men and 31.7% of the women were non-smokers. In this study a smoker was defined as a person who had smoked as much as one cigarette a day for as long as one year.

Among non-cancer patients 4.2% of the men and 53.3% of the women were non-smokers.

After the age of 45, the scientists found, the risk of developing lung cancer increases in simple proportion with the amount smoked. The risk may be about 50 times as great among those who smoke 25 cigarettes a day as among non-smokers.

Whether or not the smoker inhales does not seem to make any difference. Since the size of the smoke particle which carries the cancer-causing chemical is unknown, nothing can be said about the effect any change in rate and depth of breathing may have on the extent and site of deposition of the cancer-causing chemical.

In suggesting that arsenic from insecticides on tobacco plants may be the chemical in tobacco smoke that causes lung cancer, the scientists point out that the only cancer-causing chemical that has been found in tobacco smoke is arsenic. However, the evidence that arsenic can produce cancer of the lung is "suggestive rather than conclusive," they state.

If arsenic is the cancer-causer in tobacco smoke, it might account for the observation that deaths from cancer of the lung have increased more rapidly than the consumption of tobacco.

Science News Letter, October 7, 1950

ENGINEERING

Counter Measures Three Kinds of Radioactivity

➤ DEVELOPMENT of the first instrument that can count all three kinds of radiation from uranium—A-bomb ingredient—is claimed in Schenectady, N. Y. The new instrument, called the universal scintillation counter, not only detects and counts alpha, beta and gamma radiation, it also does this job more efficiently than any other instrument detects and counts

IDENTIFIES BIG THREE—The universal scintillation counter analyzes the white square of paper which contains the smear from object suspected to be contaminated. The instrument is able to check the smear for presence of alpha, beta or gamma rays, which are the "big three" of nuclear radiation. Mrs. Ethelyn Langdon, engineering assistant, operates machine.

only one kind of radiation.

Developed by General Electric Company engineers, the new counter is designed for use in testing laboratory equipment, in measuring radiation of ore samples, and in determining how fast radioactive substances disintegrate.

The instrument is set up to test samples of material two inches square. Radiation from a sample strikes a phosphor, a substance which gives off light in the presence of radioactivity. The light hits an electronic tube, which converts the light into electrical energy. A counting circuit is then activated by the electrical energy.

Science News Letter, October 7, 1950

RADIO

Radio Channels Double?

➤ HIGH hopes for doubling the number of available radio channels is promised by the use of what scientists call a single-sideband system of broadcasting. The system is approaching perfection.

Much work is being done by various institutions throughout the country in developing this single-sideband system. Included are technicians of Rutgers University in New Brunswick, with Prof. James Leroy Potter as the local leader.

Purpose of the work is to make more radio channels available. There are over 2,100 standard radio broadcasting stations in the United States now. There could be perhaps twice as many except for the technical difficulty that no channels, particularly in heavily populated areas, are available under the present broadcasting.

The single-sideband system, on which Prof. Potter is working in an integrated national research effort, may eventually dissolve the log-jam of stations frantically seeking airspace, he recently stated. It is still far off, however, since special receivers are necessary.

As explained by him, present radio receivers, set to pick up a certain broadcast frequency, actually receive two separate signals, one slightly above and the other slightly below the broadcasting frequency. These are the sidebands. The receiver combines them into a single perfect signal. Because of these sidebands, frequencies allotted to broadcasting stations have to be spread quite far apart to prevent interference.

Among others working on sideband transmission are the U.S. Air Force and Stanford University in California. A new and radically simpler single-sideband transmitter was revealed by the latter recently. It was based on developments carried out in New Jersey laboratories of the Air Force.

The device utilizes only one of the sidebands formed. It eliminates the carrier signal completely. Voices transmitted by the single-sideband system are received as gibberish on ordinary receivers. Special receivers will be necessary if the system becomes widely used. The communication-type sets used by amateurs can be converted to receive them by a simple adjustment.

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METEOROLOGY

October Weather Will Change in Circles

➤ OCTOBER will be different this year. The Middle Atlantic states will experience much above normal temperatures. Montana, Idaho, and Wyoming will be much below normal in temperature. From these two centers the temperature will get gradually warmer and colder in ever-widening circles. But there will be little of the country that experiences a near normal temperature. This is the word of the Extended Forecast Section of the U. S. Weather Bureau.

Where the temperature is much below normal, there will be snow. All over the country, precipitation, including both rain and snow, will be heavier than normal, except in the Pacific coast states, the South Atlantic states and along the Gulf coast. There less rainfall than normal is expected.

For most people this will be an unusual October.

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VETERINARY MEDICINE

Aftosa Lab Killed

Congress, beset by the faint-hearted, refused money to set up a laboratory off the Rhode Island coast for the study of aftosa after previously authorizing the project.

➤ THE ABSENCE of one small item in the $17,000,000,000 supplemental appropriations bill must have struck fear into the heart of the Devil, despite his gloatings over H-bombs, bigger bazookas and more battalions.

By legend, the Devil has cloven hoofs. And when Congress killed an Agriculture Department project to build an animal disease laboratory off the Rhode Island coast, all cloven-hoofed animals—cattle, sheep, swine and goats as well as Lucifer—moved deeper into the shadow of one of the most dangerous plagues in the world, foot-and-mouth disease.

On Prudence Island, in Narragansett Bay, was to be built the largest laboratory in the world devoted to study of foot-and-mouth disease. Congress approved the need for such a laboratory somewhere in the United States in 1948. Last year $500,000 was appropriated to pick a site, secure options on the land and prepare plans for the research center. Prudence Island was then chosen as the best possible location in the country.

But Congress now has refused the money to build the laboratory. It met the frightening opposition of such organizations as the Cape Cod Milk Goat Breeders Association, the Newport, R. I., County Chamber of Commerce and the Rhode Island Federation of Garden Clubs.

With great indignation, these groups joined dairymen, cattle breeders and resort owners in the area in protesting that the proposed laboratory was a menace to public health, the New England farmer, the summer resort tourist trade and the safety of the milk and meat supplies of the nation.

The organism that causes foot-and-mouth disease is a filterable virus. It is so small it can be seen only under an electron microscope. Highly contagious, it can race like wildfire through a cattle herd. Cattle men fear it above all other diseases, for there is no cure. Infected animals must be killed and buried under lime. If the disease once gained a foothold in the United States, it would almost certainly disrupt the nation's livestock industry and meat supply.

For nearly four years, scientists of this country and Mexico have been waging a desperate battle to stamp out foot-and-mouth disease below the Rio Grande. The border has been closed to all cattle shipments since 1947, and Uncle Sam has spent $119,000,000 and sent 900 Americans to help fight "aftosa," as Mexicans call foot-and-mouth.

In a laboratory outside of Mexico City, the scientists achieved what was believed to be impossible—eradication of the disease, not by mass destruction but by vaccination. A new serum, administered four times to every animal in a 205,000-square-mile quarantine belt, stopped the disease from spreading. Since last December, there has not been a new case.

It will take two more years to learn whether the new technique really has worked, or whether the virus is merely dormant until the immunization of the cattle wears off. Meantime, production of the vaccine has ceased. Only a rigid inspection system is now being carried on.

In this country, no research on foot-and-mouth disease is permitted. Congress passed a law that the virulent virus could be studied only on an island separated from the mainland by deep navigable waters. The Agriculture Department now has no such laboratory—nor will it have, this year at least.

In its request for funds—to carry out Congressional directions—Agriculture hoped at last to obtain a laboratory where new knowledge and new vaccines might someday wipe out even the threat of foot-and-mouth disease.

But then came the bellows from Rhode Island—"We approve highly of a laboratory, but we don't want it here," said witness after witness.

Congress meekly concurred, and the United States, this year at least, will not have a single place where scientists are allowed to study the dread plague of animals with cloven hoofs.

Science News Letter, October 7, 1950

MEDICINE

New Dressings for Burns

➤ NEW dressings almost as big as a blanket are on their way to Korea for better treatment of large-sized wounds and burns our fighting men may suffer.

The smaller of the two new dressings is about five times larger than the largest size single dressing now in use. It measures 19 by 34 inches. The larger one measures 43 by 45 inches.

The dressings are made of a layer of highly absorbent fine mesh gauze, a layer of absorbent cotton, a layer of non-absorbent cellulose and an outer layer of paper. The gauze layer that goes next to the wound may be treated to reduce irritation to wounds. The non-absorbent layer prevents bacteria from entering the wound. Both gauze and paper are buff color.

One advantage of the new dressings is that they can be left on for as long as two weeks, instead of having to be changed every day or two as at present. Another is

BLANKET DRESSINGS—The bigger dressing for burns is easily applied, as shown in the picture, and can be left on as long as two weeks.

the greater ease and speed with which the big wound or burn can be covered.

The extensive burns and wounds from high explosive bombs, blast and fires during the last war and the possibility of equally extensive burns and wounds in case of any future atomic bomb bursts, many of which would have to be dressed in a hurry by relatively untrained lay persons, led to development of this new type dressing by the Army Medical Service's research and development board.

Science News Letter, October 7, 1950

GENERAL SCIENCE

Gov't-Financed Research

➤ SCIENTIFIC progress in America will depend more and more in the future upon government-supported laboratories and research institutes, Dr. Selman A. Waksman, pioneer in the development of the "miracle drugs," the antibiotics, told a distinguished gathering of U. S. and foreign scientists in New Haven, Conn.

Dr. Waksman, who discovered streptomycin at the New Jersey Agricultural Station, spoke at 75th anniversary observances of the Connecticut Agricultural Experiment Station in New Haven, Conn., oldest in the nation.

He pointed out that the great capital investments and costs of modern research can often be met only by states or the federal government.

"Government-supported institutions . . . will serve as one of the most important fountains of research," Dr. Waksman said, "which will continue to be the fundamental base for stimulating industry and agriculture, and lead to improvement of public health and human welfare."

As examples of the scientific contributions of government-supported institutions, Dr. Waksman cited the development of hybrid corn, vitamin D, better understanding of the protein value of plants, and the overall study of soil fertility and microbiology. He also cited the study of the actinomycetes in the soil which led to the discovery of streptomycin, chloromycetin, aureomycin and many other new antibiotics.

"Today, in America alone, more than 1,000 investigators are said to be studying the actinomycetes," he said.

The present age may be designated either as the "atomic age" or the "antibiotic age," Dr. Waksman commented. In whatever field of science, however, "it is the coordination of the discoveries of individual investigators, on the one hand, and of the team of research workers on the other, that will yield the great secrets of nature, for the benefit of man. . . . Let us hope that modern society will learn to use these discoveries for its own well-being rather than for its destruction."

Other speakers at the anniversary symposium, who discussed the various non-governmental types of research institutions, included Dr. Edmund W. Sinnott, director of Sheffield Scientific School at Yale University, Dr. George O. Curme, Jr., vice-president of Union Carbide and Carbon Corporation, and Dr. Alexander Wetmore, secretary of the Smithsonian Institution.

Science News Letter, October 7, 1950

METEOROLOGY

Rain from Smoke Pall

➤ THAT Canadian smoke which covered a large part of eastern United States during the last part of September might have caused widespread rains. If the proper cloud conditions had existed, the extra amount of tiny particles in the air as a result of the fire could have changed the clouds into rain.

Dr. Vincent Schaeffer, the original rainmaker who works with Dr. Irving Langmuir of General Electric Laboratories, Schenectady, N. Y., told Science Service that there had been several local snow showers around Schenectady, which came from low clouds in a rather unusual manner.

Dr. Schaeffer, however, does not believe that the smoke particles themselves could have been the sublimation nuclei which are the trigger for rain. Heat from the fire, he explained, would cause a tremendous convection which would lift an abnormal amount of tiny mineral particles from the soil into the air. These would travel along with the smoke and could have been the sublimation nuclei.

While there might have been a great deal of rain along with the smoke if cloud conditions were right, there also is the possibility that the fire would have produced too many nuclei. This is known as "overseeding" to rainmakers and when that happens, either in deliberate attempts to make rain or in nature, it fails to produce the rain.

Weather Bureau experts in Washington, however, debunked the idea that the Canadian fire might have caused widespread rains. Dr. F. W. Reichelderfer, chief of the Bureau, told Science Service that it all depends on whether you believe in one of the two schools of thought about rainmaking or the other.

Most Weather Bureau meteorologists, he explained, believe that nature provides enough sublimation nuclei to make most of the rain that is going to come down. If that is the case, he explained, more nuclei will not help to any really noticeable extent. But, he went on, if you believe as the rainmakers do that nature many times does not provide enough nuclei, then you might have expected more rain, if cloud conditions were right, to follow the spread of the Canadian smoke.

Dr. Harry Wexler of the Weather Bureau explained that the smoke haze occurred, with or without its rainmaking potentialities, because the Canadian fire coincided with the beginning of the winter pattern of the weather. That winter pattern, he said, brought a strong flow of cold air down from Canada. The cold air was confined under a "lid" in the atmosphere two and a half miles high, caused when the temperature, instead of decreasing with height, either stayed the same or increased.

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ENGINEERING

Tiny Rocket Motor Tests Fuels for Full-Size Missiles

➤ ONLY two pounds of fuel per minute are consumed in a tiny rocket motor in laboratories of the Massachusetts Institute of Technology. This motor is used in studying fuels for full-size rocket-powered missiles which might use 12 tons of fuel per minute.

This "microrocket" has already proved its value in testing rocket engine fuel efficiencies. Its great advantage is the low cost of testing because of the small amount of fuel used. Also, because of its size, elaborate safety precautions are unnecessary.

The microrocket operates on exactly the same principle and with the same high efficiency as the rocket missiles being developed for warfare. The fuel testing is part of a comprehensive project under way at the Institute under the sponsorship of the U.S. Navy. The research is under the direction of Profs. Hoyt C. Hottel and Glenn C. Williams of the M.I.T. chemical engineering staff.

Although built to use any liquid fuels, this microrocket has to date been used chiefly with a combination of liquids that ignite on contact. When they come together inside the motor, the resulting flame makes a tremendous amount of heat and therefore power.

On two pounds of fuel it runs for one minute, builds up more than 300 pounds of pressure inside the motor, and shoots gas out its nozzle at a speed of about 5,000 miles per hour. The German V-2 rocket used 12 tons of fuel per minute. A testing engine that operates on very small quantities of fuel is important because some of the newer fuels are quite scarce.

Science News Letter, October 7, 1950

GENETICS

No White Race in Future

With or without atomic war the white race as we know it will be dissolved in the world's melting pot. The future citizen of the world will be largely Asiatic in descent.

➤ THE white race will be wiped out in the future, whether or not an atomic war destroys civilization.

This is the prediction of Prof William C. Boyd, anthropologist of Boston University, made in a new book, GENETICS AND THE RACES OF MAN (Little, Brown) published in Boston.

If there should be an atomic war and it did not make the whole earth uninhabitable, it would leave the human species to be perpetuated mostly by the populations of regions not reached by modern weapons. These might include the aborigines of the Australian desert, the Eskimo and others in the polar regions and the natives of central Africa, Prof. Boyd points out.

However, Prof. Boyd believes it more constructive to work on the assumption that atomic war will somehow be avoided.

"Let us suppose, for the sake of argument," he writes, "that organized civilization will avoid destroying itself by the use of atomic bombs, radioactive dust, bacteriological warfare, poison gas, or anything similar, and that the same racial groups which we have at present will continue to contribute to the racial picture in the future."

In that case, the future citizen of the world state will be largely Asiatic by descent, with the Africans, Americans and Europeans coming in a very bad second.

There will be a considerable degree of miscegenation, he predicts, and eventually much less difference between men in different parts of the world, especially in regard to skin color and types of face and hair. How straight versus kinky hair will make out is hard to predict. But this is how Prof. Boyd pictures the man of the future:

He will have dark brown eyes, a brown skin and straight or perhaps slightly wavy hair. He will be a low-brow, with head very short in relation to width.

Prof. Boyd has little hope for the success of plans to "improve" human stock. In the first place, it would be necessary to decide what human traits are good and which traits are better than others.

"It is not easy to say with confidence that any of the varieties of ability are bad, and others are good.

"There are a few human genes which it would undoubtedly be desirable to eliminate, if this could be done without causing more suffering in the process of elimination than their presence among us causes now," he states.

But eliminating a gene is not always easy. If it is dominant, then the problem is relatively simple. Sterilization of all affected persons or the voluntary avoidance of reproduction of offspring by them would wipe out a dominant trait in a single generation.

Unfortunately, however, most of the human genes known to be undesirable are recessive and in this case sterilization would act very slowly. Sterilization of all albinos, for example, would only reduce the incidence of the gene to half in a period of time equal to the entire Christian era.

"For the time being, at least," Prof. Boyd concludes, "we shall do much better to devote our energies to making better education available to those who already possess genes making them capable of benefiting from it, and to attempt to improve the mutual understanding and relationship of various groups of men who at present consider themselves racially or culturally distinct."

Prof. Boyd suggests that at present it would be much more scientific to classify human beings into races on the basis of blood groups rather than on such superficial characters as skin color, height or hair texture. This scheme would divide the world into six races: An early European group, represented today only by their sole survivors, the Basques; a European (Caucasoid) group; African (Negroid) group; Asiatic (Mongoloid) group; American Indian and Australoid groups.

Science News Letter, October 7, 1950

ZOOLOGY

Rare Guadalupe Fur Seal On San Nicolas Island

➤ A RARE Guadalupe fur seal, once slaughtered in great numbers but thought recently to be extinct, has been reported on San Nicolas Island off the southern California coast.

A single male, five and one half feet long weighing an estimated 300 pounds, was discovered by Dr. George A. Bartholomew, University of California at Los Angeles zoologist.

The last known breeding ground of this species of fur seal, according to Dr. Bartholomew, was the island of Guadalupe in Mexican waters. He recently spent two weeks on this island, however, without finding any trace of the Guadalupe fur seal.

But when he visited San Nicolas Island, 400 miles north, the single male was discovered, identified and photographed.

Dr. Bartholomew believes that this male is a member of a new colony that has begun to propagate on San Nicolas or some other Channel Island off the southern California coast.

It may, however, be the last surviving individual of the Guadalupe colony.

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ECLIPSE SNAPS—Photographs of two phases of the moon's total eclipse the night of Sept. 25-26, the last total lunar eclipse visible from the United States until 1953. On the left the moon is just coming out of the total eclipse. The bright, shiny sliver of light is that part of the moon again illuminated by the sun. The other picture is of the moon almost clear of the earth's shadow. Both photographs were taken with the 26-inch telescope at the U. S. Naval Observatory, Washington, D. C.

METALLURGY

Fireproof Sterling Silver Developed in England

➤ A NEW sterling silver alloy which is not stained by fire has been developed by English scientists. The discovery promises more beautiful objects of silver, from belt buckles to tea sets.

Secret of the silver's fire resistance is the addition of one percent of aluminum to the basic alloy. By law, all sterling silver must contain 92.5% pure silver. Copper normally makes up the remainder of the alloy, giving it better working qualities.

But in the silversmith's art, high temperatures must be used for annealing and soldering. Under this heat, oxygen from the air reaches the copper and forms colored oxides, producing a firestain which is often very difficult to remove.

The aluminum in the new alloy, however, oxidizes first. A thin film of aluminum oxide forms on the surface of the object and prevents oxygen from penetrating the metal and oxidizing the copper. The stain is limited to a thin surface layer which is easily removed in final buffing and polishing.

If the aluminum content is less than 0.9%, according to the report of England's Design and Research Center, the oxide film is not continuous enough to shut out the oxygen; if it is above 1.5%, the working properties and color of the silver are noticeably affected.

The new alloy has been covered by a provisional patent in England only to insure that it is freely available to all silversmiths.

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ENTOMOLOGY

Battle against Forest Insect Ravage Stepped up

➤ THE government is stepping up its long-term battle against an enemy which ranks with fire in ruining American timberland—the forest insect.

Dr. Harvey J. MacAloney, veteran insect scientist of the Agriculture Department, was named to head a new warning network designed to spot insect outbreaks before they reach the point where, like fire, they can race out of control through valuable timber.

A Forest Insect Survey was approved by Congress in 1947. Although it is still in skeleton form, eventually the Survey hopes to cover all 48 states with a system of trained observers. These men, many working on a volunteer basis, will keep sharp eyes cocked for dangerous buildup of the tiny forest marauders.

One of the most serious of these, at present, is the spruce budworm, eating its way through a million acres of Pacific Northwest Douglas fir, white fir and spruce. Seven forest-dusting pilots were killed this summer in fighting the budworm plague, which earlier had brought ruin to 2,000,000,000 acres of forest in Alberta.

Other pests, which in some parts of the country cause damage far exceeding fire losses, include bark beetles and a host of those insects that chew the foliage of trees.

The insect network will be a weapon against fire as well. Trees which have been killed by pests are prime fire hazards.

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ENGINEERING

Specially Designed Radar Sets Aid Weather Tracking

➤ SPECIALLY designed radar sets with ranges of 200 to 250 miles, working in pairs, will be a valuable aid to weathermen in tracking storms and hurricanes. A pair of radar sets, one in Fort Monmouth, N.J., and the other in Cambridge, Mass., right now are busy tracking storms in experimental work for the Army Signal Corps.

Signal Corps experts believe this method of keeping continuous track of a storm from two angles will provide much valuable information about the origin and progress of such disturbances. Right now, the radar operators are trying to learn exactly what it is that they see on a radar scope trained on a patch of sky.

They know that the frequency on which radar signals are broadcast and the size of raindrops which these signals hit have a bearing on the kind of signal pictured on the scopes. However, they do not yet know exactly how big raindrops have to be before radar signals will bounce back from them to the radar. Signals bounce off ice crystals also and therefore the same problem exists. These and other problems may be solved by experiments with the two radars now in use.

Science News Letter, October 7, 1950

VETERINARY MEDICINE

Cattle Disease Kills 400 Army Deer

➤ "BLACKLEG," a disease which kills thousands of young cattle annually in the United States, has now been found to attack wild deer.

At the Army Proving Grounds in Aberdeen, Md., more than 400 out of about 2,500 deer which roam the reservation have died of the disease. The deaths are reported by Army veterinarians, Lt. Col. H. L. Armstrong and Maj. J. K. MacNamee, in the JOURNAL OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION.

Although blackleg can be prevented by vaccination, it is fatal to young cattle which are not immunized, and sometimes attacks sheep and other livestock.

Science News Letter, October 7, 1950

IN SCIENCE

NUCLEAR PHYSICS

Swiss Mountain Scene of Cosmic Ray Research

➤ THE SUMMIT of Switzerland's 13,600-foot Jungfraujoch mountain will be occupied this winter as a cosmic ray observatory by four University of Manchester scientists who will study the production of meson atomic particles by these penetrating radiations from outer space.

Dr. P. M. S. Blackett, Nobelist and British atomic scientist, will lead the team, which will use a 14-ton magnet and cloud chamber apparatus to observe the mesons, which are the particles that are involved in the constitution of the atomic heart.

Previous explorations of cosmic rays have led the same group of scientists to conduct experiments deep in London subways and British coal mines.

Science News Letter, October 7, 1950

AGRICULTURE

2, 4-D Colors Potatoes For Buyer "Eye Appeal"

➤ DON'T be surprised if your wife brings home some potatoes she purchased because "they are pretty."

A method of using the well-known weed killer, sodium salt of 2,4-D, to intensify red skin color and increase vitamin C content of Red McClure and Bliss Triumph varieties of potatoes has been reported in synthetic plant hormone studies by the Colorado A & M College Experiment Station, Fort Collins, Colo. The 2,4-D is applied as a spray to the vines while the potatoes are still in the ground.

Intensifying the red color is aimed at providing a potato with eye appeal to the commercial buyer as well as the housewife. By increasing vitamin C content up to 12.5% through spraying with 2,4-D, the potatoes will provide a larger portion of the daily body requirement of vitamin C in a cheap food, Station chemists point out.

Because potatoes form such a large part of the nation's food supply, they provide much of the vitamin C requirement. A tendency toward tougher skins, which would be an advantage at digging time, has also been noticed.

Growers of red-skinned potatoes have been warned to be especially careful in use of plant-killing 2,4-D to "color" and increase vitamin C content of the spuds. Recommendations for using 2,4-D have been prepared by Dr. Jess L. Fults, Colorado Experiment Station botanist, and Dr. Lawrence Schaal, USDA plant pathologist.

Science News Letter, October 7, 1950

ENCE FIELDS

HOME ECONOMICS

Aluminum Takes Fresh Fish to Market

➤ FRESH fish which travels from wharf to market packed in light, airtight aluminum containers is the advance guard in a revolutionary new method of distributing perishable foods now being tested in England.

Although the fish is marketed in cans, it is not "canned fish" in the usual sense. It is as fresh as if the housewife picked it from a barrel of ice in the grocery store and carried it home wrapped in the traditional newspaper.

The aluminum containers take the place of the ice in preserving freshness. Choice fish straight from the trawlers is filleted by skilled workers working near the fish docks at Hull, England, sealed in the aluminum cans and sent to wholesalers and retailers in London, Manchester, Southampton and other cities for sale.

The venture could be the forerunner of similar packaging methods for other types of perishable foods. Fresh vegetables, fruit or meat conceivably could be transported in the same sort of containers. They give protection not only from air and high temperatures (the aluminum reflects heat rather than absorbs it) but also from rough handling.

Exhaustive tests have proved the fish shipped in this manner reach the consumer in good condition. Waste and nearly all bones are removed at a central location. The fish are washed in water which contains a small amount of chlorine to destroy surface germs. Tightly packed in cans ranging from one to 14 pounds capacity, they represent a solid block of fresh fish surrounded by a light sheet of aluminum, which is a tough customer in the knocks and jolts of freight transportation.

Science News Letter, October 7, 1950

ENGINEERING

Stainless Steel Promises Larger TV Picture Tubes

➤ LARGER rectangular pictures in home television sets are promised with the development of a new stainless steel particularly suitable for use in picture tubes because it has a heat expansion rate practically the same as that of the glass screen.

TV tubes with metal sides and glass fronts are more durable than tubes of all glass and they can be constructed in larger sizes and in rectangular shape. One difficulty has been a suitable metal that will expand and contract at the same rate as the glass under the heat conditions developed in the tube. If the expansion rates are different the glass will crack.

Stainless steel is a desirable metal in television tubes because it is durable and non-corrosive. The new steel was announced in New York by United States Steel Corporation. It was developed by Carnegie-Illinois Steel Corporation, a subsidiary, in cooperation with video vacuum tube manufacturers. It is an alloy containing 17% chromium. By special processes its grain structure is stabilized without changing its other desirable characteristics.

Science News Letter, October 7, 1950

ENGINEERING

Boron and Carbon in Electrical Resistors

➤ NEW electrical resistors in which a thin film of carbon and boron takes the place of tightly-wound wire coils were described in Chicago, Ill., at a National Electronics Conference.

The new units, developed at Bell Telephone Laboratories in New York, were discussed in a technical paper presented by Bell engineers R. O. Grisdale, A. C. Pfister and G. K. Teal.

Resistors with carbon films laid on ceramic cores have seen increasing use in recent years. The addition of the element boron to the film has further improved the electrical characteristics of the resistors, and opened the way for widespread use in the communications and electronics fields. Borocarbon resistors, said the engineers, are smaller and less expensive than wire-wound types designed for the same jobs.

Science News Letter, October 7, 1950

BIOLOGY

Penicillin Increase Due To Mold Heredity Change

➤ A FOUR-FOLD increase in the output of penicillin has resulted from scientists' ability to change the heredity of the mold that produces this first of the antibiotic wonder drugs.

This accomplishment, of live-saving importance to millions throughout the world, was cited as one of many examples of the benefits of the modern science of genetics by Dr. Conway Zirkle of the University of Pennsylvania at the American Institute of Biological Sciences meeting at Ohio State University in Columbus.

Plants and animals have been bred to give man more foods and in the field of human heredity, Dr. Zirkle pointed out, geneticists and physicians have combined to find ways of predicting which couples are going to have babies afflicted with the often fatal Rh blood disease. As a result, many such tragedies have been prevented.

A formula for pre-birth prediction of anemia in a laboratory animal of pure genetic stock was also reported.

Science News Letter, October 7, 1950

MEDICINE

Videognosis for Rural Patient

➤ SICK and injured patients in rural hospitals may some day have the diagnostic services of big city medical specialists via a new technique called videognosis.

The technique, consisting in television transmission of X-ray pictures, has already worked successfully in trials by Dr. J. Gershon-Cohen and associates of the Jewish Hospital of Philadelphia.

The specialist and the physician at the patient's bedside confer by telephone while viewing the X-ray picture and its televised image.

The television image is said to be better in some respects than the original X-ray picture because dark and light contrast can be made greater for easier reading and special parts can be magnified by focussing of the transmitting camera.

Science News Letter, October 7, 1950

NUCLEAR PHYSICS

Small Plastic Vial Is New Radiation Detector

➤ A PLASTIC vial about two inches long and half an inch in diameter is the latest device protecting workers in U. S. atomic energy plants and laboratories from overdoses of radiation.

The miniature detector, worn on the clothing during working hours and then checked by recording instruments over a double radiation range, was announced recently by scientists at Argonne National Laboratory in Chicago, Ill.

Its invention makes possible for the first time radiation measurement over two different dosage scales, using a single detecting device carried by an individual who works with radioactive materials.

The plastic cylinder is filled with air. Inside is a thin plastic rod. An electrical field is established between the walls of the tube and the rod. Radiation causes this charge to "leak" away. By measuring the drop in charge after working hours, technicians can tell how large a dose of radiation the worker received.

The tube is hermetically sealed and lined with a thin film of grease and graphite to prevent any movement of dust particles through the air in the electrical field. In earlier instruments, dust caused leakage of the charge and produced a higher radiation reading than the amount actually received.

The new atomic pill bottles, although accurate and inexpensive, probably will not be practical for use by large numbers of ordinary citizens as radiation warning devices in case of atomic attack. There is no way to "read" them directly. Special indicating equipment and technicians to run it are needed.

Science News Letter, October 7, 1950

SAFETY

Check Bleeding First

Apply pressure immediately to stop bleeding from wounds, for loss of more than two pints of blood at one time is often fatal.

Second in a series on first aid for atom bomb casualties.

By JANE STAFFORD

➤ LOOK for 1) serious bl[eeding], 2) difficult breathing or stoppage o[f] [br]eathing, and 3) poisoning. Treat immediately, in that order, before you do anything else.

This is the Number One rule which will be taught 20,000,000 persons throughout this nation who will be needed to give first aid in event of an atomic attack.

It is the prime rule to remember at any time you are giving first aid, whether to victims of a highway accident or to someone who is accidentally injured at home or at your place of work.

Victims of an atomic attack will suffer many kinds of injuries. There will be all the kinds that would come in an ordinary bombing attack, plus a few peculiar to the atom bomb itself. Flash burns, burns from fire and injuries from blast, from flying debris and from collapsing buildings can be expected in varying degrees, both as to number and severity.

From the bomb itself, of course, will come ionizing radiations, the alpha, beta, gamma, and neutron rays which are so mysterious and frightening to most people. The damage these do depends on the dose of them that gets inside the body.

As a first aider, you should not worry about radiation injuries. But if, two or three days after the bomb burst, one of your friends or neighbors complains of feeling sick, and perhaps has been nauseated and had diarrhea, you should suspect radiation injury and advise him to see a doctor promptly. Many borderline cases might be saved by transfusions of whole blood. And perhaps by the time an atom bomb drops on your town, medical scientists may have found other good treatments for the radiation injury from it.

Temporary Blindness

Some of the victims may complain that they cannot see. Unless the eyes are protected, the flash of the bomb could produce temporary blindness. Normal eyesight will return in about five minutes on the average, though this temporary blindness may last several hours.

You help these victims to a safe place, reassuring them, and of course treating any serious injuries they may have. But leave the eyes alone. You do not want to put anything in or on the eyes that might cause infection.

Radiation from the bomb can cause serious damage to the eyes. The number of these radiation cataracts so far reported among Japanese victims, however, has been small. They do not develop immediately and, like any other cataract, require treatment by an eye specialist when they do develop.

Immediately after the bomb goes off, you are going to be busy helping people with bad burns, torn and mangled limbs, gaping belly wounds with intestines and other internal organs showing, and people choking and gasping for breath because of pressure on chest and belly or a wound that has pierced the chest. And there will be others with mouth and nose so covered by sand, gravel and other rubble that they cannot breathe.

Remember that you must look first for serious bleeding and stop it. Loss of more than two pints of blood at one time can be serious and may be fatal. If a large artery or vein is cut, blood will pour out fast and in large quantities. Bleeding is serious if bright red blood spurts from a wound or if the blood is flowing freely, whether bright or dark. Blood from arteries is brighter than blood from veins and usually comes in spurts corresponding to the beating, or pumping action, of the heart.

Action at Once

You do not need to decide, however, whether the blood is coming from an artery or vein. If it is coming fast and does not stop by itself within four or five minutes it is serious and you must try to stop it. Remember, the victim may have been bleeding four or five minutes by the time you reach him. So if you see a lot of blood on his clothes or see the blood pouring from a wound, go into action at once.

Direct pressure is the most commonly used way to stop bleeding. You may have to put your hand right on the wound.

Sometimes pressing your fingers on the edge of the wound will stop the bleeding. If you have a sterile gauze compress, use it, but do not wait to get one. A clean handerchief or cloth is better than your hand or fingers, but again, do not wait to find one. Depending on circumstances, you can send someone for a handkerchief or bandage, or the victim may be able to apply pressure while you get one. As soon as you can, substitute a cloth or dressing for your hands and fingers and press firmly on that. If this stops the bleeding, bandage the cloth or dressing tightly.

Look at the bandage frequently to see whether bleeding has started again. If it has, you must apply more pressure. Do not take the bandage and dressing off, however. This might disturb or break the clot that is forming. The clot is nature's way of stopping bleeding.

Movement Risky

If the bleeding is from a wound in the neck, you cannot very well bandage a dressing in place. Put your hands above and below the cut and press firmly enough to stop the bleeding and keep up the pressure until a doctor tells you to stop. Because the blood will make the neck very slippery to hold, a compress of the cleanest material immediately available will be a great help in keeping the pressure on.

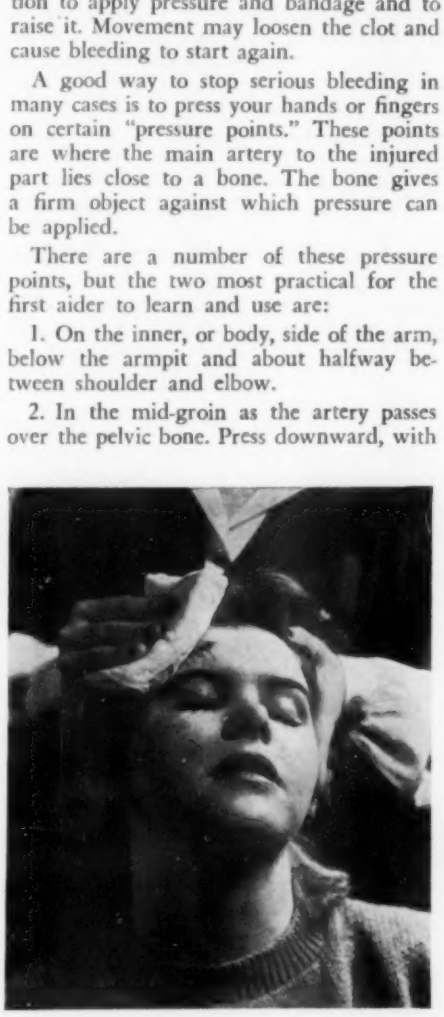
When bleeding is from the hands, feet, arms or legs, it may help to raise the injured part. If there is a broken bone, however, do not do this. Keep the injured part quiet, aside from the necessary manipulation to apply pressure and bandage and to raise it. Movement may loosen the clot and cause bleeding to start again.

A good way to stop serious bleeding in many cases is to press your hands or fingers on certain "pressure points." These points are where the main artery to the injured part lies close to a bone. The bone gives a firm object against which pressure can be applied.

There are a number of these pressure points, but the two most practical for the first aider to learn and use are:

1. On the inner, or body, side of the arm, below the armpit and about halfway between shoulder and elbow.

2. In the mid-groin as the artery passes over the pelvic bone. Press downward, with



STOP THAT BLOOD — Serious bleeding may be stopped by pressing on the wound with a sterile compress. If a compress or clean cloth is not available, use your fingers.

PRESSURE POINTS—When blood flows freely from a wound, it may mean an artery or a vein has been severed. To stop such bleeding, first aid trainees are taught two main pressure points: For an arm wound, just below the arm pit; for a leg wound, where the leg joins the body.

your arm straight, pressing the heel of your hand into the middle of the groin.

You undoubtedly have heard about tourniquets used to stop bleeding. Remember that they are always dangerous. Applied by someone who knows how, they are useful, but they should not be used if bleeding can be checked by other means.

Science News Letter, October 7, 1950

ECONOMICS

Economics Affects Vote

➤ POLLSTERS may be much more exact in their future election predictions because the United States Census Bureau has divided the nation into 443 "economic areas." A young population expert of the Bureau, working on his own time, has discovered a remarkable correlation between these economic areas and voting habits.

The expert, Calvin Beale, of the Bureau's Population Division, has found in preliminary studies that people in one economic area are likely to have a consistently different voting pattern than people in the neighboring economic area. This does not mean that all people in one economic area vote either Republican or Democratic—only the pattern is different.

The areas—150 metropolitan and 293 non-metropolitan areas—were devised as a new tool in the study of many of the nation's problems. Already they are being used in planning of road systems, studies of migration and fertility.

Each of the economic areas consists of a county or group of counties within a state with agricultural, industrial and social characteristics that differentiate it from other areas. For purposes of study and research, this kind of area makes much more sense than the artificial, political boundaries of counties and states.

However, the new areas are a compromise in one respect. Since our vital statistics are set up along county and state lines, the economic areas all consist of whole counties or groups of counties within states.

Dr. Donald J. Bogue, of the Scripps Foundation for Research in Population Problems, cooperated with the Census Bureau in setting up the new areas. It is his opinion that public opinion predicters will have to take cognizance of the new areas, making sure that their samples fairly represent all the different ones.

For pollsters, economists, sociologists and others who want to study problems on a national level, many of these economic areas may be combined across state boundaries. These combinations will probably be called economic sub-regions and economic regions. A sub-region will contain two or more similar economic areas without regard to state boundaries. A region is a grouping of several sub-regions which have the same fundamental characteristics. The nation can be divided into about 20 economic regions.

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On This Week's Cover

➤ THE first turbo-prop powered tactical attack bomber, the Douglas A2D Skyshark, combines a short take-off, a high operating altitude, and a speed approaching that of a jet fighter with a high load carrying ability. The bomber's predecessor, the Douglas AD Skyraider, has been used in the fighting on Korea. Skyraiders struck from the carrier Valley Forge on July 3 after receiving authority to bomb North Korea and have been hitting installations steadily ever since with 6000-pound bombloads.

The bombload per mile per hour of the A2D is almost 50% greater than that of the AD while fuel consumption per pound of bomb per mile is substantially the same as that of the AD piston engine airplane. This comparison indicates a great improvement in performance efficiency.

Science News Letter, October 7, 1950

ARCHAEOLOGY

Sutton Hoo Bone Not Bone

➤ THE FRAGMENT believed to be bone—the only trace of bone found in the archaeologically very important Sutton Hoo ship burial in Britain—is not really bone at all, it is indicated by Dr. H. Barker of the Research Laboratory, British Museum, London, in a report to the journal, NATURE (Aug. 26).

The Sutton Hoo burial is important because of the wealth of treasure in gold, coins, and delicate cloisonne jewelry as well as such imported items as silver dishes from Byzantium, gourd drinking cups from as far away as the south of France and a helmet from the Baltic coast of Sweden.

This burial, dated between 650 and 670 A.D., has puzzled archaeologists for two reasons. First, the "grave furniture" shows it to be a pagan grave in a pagan burial place, and yet there is reason to believe that the grave is that of one of the East Anglian kings, all of whom were devout Christians. There are also crosses and other clear signs of Christianity in the grave itself.

Another puzzle is the fact that when first excavated, no sign of a body was found.

Was this burial in an 80-foot rowboat on the east bank of the River Deben, in Suffolk, merely a public monument to a king? Did his body receive Christian burial somewhere else in consecrated ground?

The new finding from the research laboratory of the British Museum does not seem to throw any new light on this question.

Key to the deception of what was thought to be a piece of bone lies in the acidity of Sutton Hoo soil which does not favor the preservation of human bones. Chemical analysis of the "bone" showed it to be essentially a hydrated ferric phosphate containing only traces of calcium.

Dr. Barker visualizes the formation as taking place in this way:

While the acid of the soil would dissolve bones, the diffusion of corrosion products from nearby iron fragments in the structure of calcined or burned bone would, by the deposition of insoluble ferric phosphate, form a cast of the original bone. Thus the fragment found in the grave was not of unburned bone, as originally supposed, but acually an insoluble product from burned bone formed by contact with corroding iron under acid soil conditions.

Dr. Barker's report does not indicate that there was any evidence that the original bone was human or that any indication was found that a cremated body was buried in the grave; the early Christians opposed cremation because it was believed that the body should be buried whole to favor resurrection.

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GENERAL SCIENCE

$225,000 for National Science Foundation

➤ WHEN President Truman signed the $17,000,000 supplemental appropriations bill, $225,000 became available for the first year's operation of the new National Science Foundation. Originally designed to stimulate research in the more peaceful aspects of science, the Foundation may now find itself concerned with wartime jobs.

One of its jobs will be to keep a roster of the nation's scientific, technical and engineering personnel. This roster will be invaluable in case of an all-out mobilization. In addition, the Foundation might possibly be given the job of drafting scientists and engineers in the event of war.

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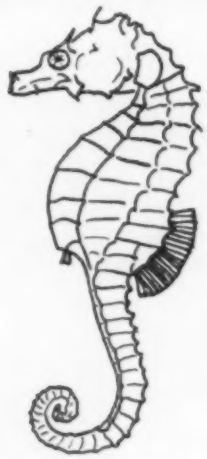
ICHTHYOLOGY

NATURE RAMBLINGS



Sea Horse

➤ IN GREEK and Roman mythology, the sea horse was a fabulous creature, half horse and half fish, driven by sea gods and ridden by their daughters the sea nymphs. Medieval and even more modern writers put on a few trimmings: "The Sea Horse between Brittany and Norway is oft seen to have a head like a horse, and to neigh; but his feet and hoof are cloven like to a cow's; and he feeds both on land and in the sea. He is seldome taken, though he grows to be as big as an ox. He hath a forked tail."

Neptune's Pegasus is a queer enough little fish in its own right, without embellishments which make it a new form of sea monster. Only in Pacific waters where there is giant kelp in which to hide does the sea horse grow to as much as a foot in height; elsewhere it lives out its life only a few inches high. It has no hoofs, cloven or otherwise. Its tail is neither forked nor actually a tail, but part of its body. It has a tough hide stretched over a bony frame, which gives the impression that the sea horse wears a suit of armor.

Though the sea horse is really a fish, it acts like a monkey, coiling its posterior appendage around bits of eelgrass or seaweed and hanging there at anchor. The only difference is that the sea horse hangs head uppermost. The danger in the sea is not the chance of falling to the bottom but of falling upward to the surface.

Likewise the sea horse swims in a vertical position. Its gait is a series of short convulsive jerks—an elfin gallop hampered by blind staggers. Standing nearly upright in the water, it propels itself by a supple fin midway on its back which waves to and fro faster than the eye can see. There is a tiny fin beneath the sea horse's businessman paunch, and two others spotted where humans have ears. By waving these and bending its head, the fish goes uphill or down.

Some say the sea horse has a jet in the top of its head for sudden crash dives. A naturalist who lives in a sea horse country says, "I have seen sea horses near the surface squirt a jet of water three inches into the air in their frightened efforts to submerge." But detailed studies of sea horse locomotion make no mention of such a blow-hole.

In the sea horse family, it is Pop who brings up the children. In breeding season the male develops a pouch like the pocket of a female kangeroo. The mother's eggs are laid in this pouch, and there the youngsters stay until they hatch and are old enough to swim. When they emerge, it looks exactly as if the father were giving birth.

Science News Letter, October 7, 1950

CHEMISTRY

Filbert Nut Chemical Makes Cheese Better

➤ "IT'S the nuts" could be said of a new American cheese of superior flavor that was reported to the American Chemical Society in Chicago by four Oregon State College chemists.

Substances that help to digest protein—called proteolytic enzymes—can now be obtained from filbert nuts. They are used in cheddar cheese making. Tested for their effect on processing pasteurized milk into cheese, the filbert enzymes gave a product of better flavor which was described as mild and clean. The ripening time of the cheese was also substantially shortened, which reduces the expense of storage room.

Filberts are already a surplus crop in Oregon and many young filbert orchards will produce constantly increasing yields. The research on filbert extracts was done by Husain A. B. Parpia, Roy W. Stein, Thomas B. Niven and Ernest H. Wiegand.

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• Books of the Week •

TO SERVE YOU: To get books, send us a check or money order to cover retail price. Address Book Dept., SCIENCE NEWS LETTER, 1719 N St., N. W., Washington 6, D. C. Ask for free publication direct from issuing organizations.

A. S. T. M. STANDARDS ON PLASTICS—A.S.T.M. Committee D-20—*American Society for Testing Materials*, 5th ed., 1077 p., illus., paper, $4.85. Specifications, methods of testing, nomenclature and definitions.

AIR POWER: Key to Survival—Alexander P. de Seversky—*Simon and Schuster*, 376 p., illus., $3.50 (Paper: $1.00). The author discusses peace through air power, defense in the atomic age and many other current military air power problems.

AN ATLAS OF HUMAN ANATOMY—Barry J. Anson—*W. B. Saunders*, 518 p., illus., $11.50. An atlas of gross anatomy whose pictorial content is based upon new dissections, serially prepared, and upon variable morphological features statistically presented.

THE COMPLETE BOOK OF BUILT-INS—William J. Hennessey—*Harper*, 182 p., illus., $3.50. Many ideas are presented showing how to get more out of every square inch of floor space in your home.

EVALUATION OF INDUSTRIAL DISABILITY—Committee for Standardization of Joint Measurements in Industrial Injury Cases of the California Medical Association and Industrial Accident Commission—*Oxford University Press*, 89 p., illus., $4.00. The committee has developed a standard method for measuring and reporting restriction of joint movement in industrial and other injury cases. For professional and lay use.

FLINT QUARRIES—THE SOURCES OF TOOLS AND, AT THE SAME TIME, THE FACTORIES OF THE AMERICAN INDIAN, Vol. XVII, No. 3: With A Consideration of the Theory of the "Blank" And Some of the Technique of Flint Utilization—Kirk Bryan—*Peabody Museum of American Archaeology and Ethnology*, 40 p., illus., paper, $2.00. This monograph outlines several theories regarding quarries.

GENETICS AND THE RACES OF MAN: An Introduction to Modern Physical Anthropology—William C. Boyd—*Little, Brown*, 453 p., illus., $6.00. An attempt to base physical anthropology on genetics instead of on older systems of bone measurement and skull conformation. (See SNL, Oct. 7, p. 231.)

LABORATORY GUIDE—George S. Eby and others—*Ginn*, rev. ed., 160 p., illus., paper, $1.28. A high school manual to accompany THE PHYSICAL SCIENCES listed in this book column.

MANUAL FOR COMPARATIVE ANATOMY—Leonard P. Sayles—*Macmillan*, rev. ed., 214 p., illus., paper, $3.00. Provides for a one year course in vertebrate anatomy as given by the City College of New York. The manual is not designed to go with any special textbook.

MASKS AS AGENTS OF SOCIAL CONTROL IN NORTHEAST LIBERIA, Vol. XXXII, No. 2—George W. Harley—*Peabody Museum of American Archaeology and Ethnology*, 43 p., illus., paper, $3.25 A monograph on the significance of masks in Northeast Liberia. There are 15 black and white plates.

MCCLUNG'S HANDBOOK OF MICROSCOPICAL TECHNIQUE—Ruth McClung Jones, Ed—*Hoeber*, 3rd ed., illus., $12.00. A handbook revised and brought up-to-date. For workers in animal and plant tissues.

THE MEANING AND PRACTICE OF PSYCHOTHERAPY—V. E. Fisher—*Macmillan*, 411 p., $5.00. Describes and illustrates procedures and techniques of therapy in neurotic and psychotic areas.

MECHANISM AND EVALUATION OF ANTISEPTICS—Herbert L. Davis, Consulting Ed. & Conference Chairman—*New York Academy of Sciences*, 219 p., illus., paper, $3.00. A series of papers which resulted from a conference held by the Section of Biology of The Academy, October 28 and 29, 1949.

NEUROSIS AND HUMAN GROWTH: The Struggle Toward Self-Realization—Karen Horney—*Norton*, 391 p., $3.75. A study of the individual's development under inner stress.

THE ORGANIZATION OF INDUSTRIAL SCIENTIFIC RESEARCH—C. E. Kenneth Mees and John A. Leermakers—*McGraw-Hill*, 2nd ed., 383 p., illus., $5.00. A revised edition covering the steps in organizing and operating an industrial research laboratory.

THE OTHER SIDE OF THE BOTTLE—Dwight Anderson—*Wyn*, 258 p., $3.00. The author tells of his own recovery from a form of alcoholism. Supplementary case histories are also presented.

PARASITES OF THE PECAN NUT CASEBEARER IN TEXAS—C. B. Nickels, W. C. Pierce and C. C. Pinkney—*Gov't. Printing Office*, U. S Dept. of Ag. Tech. Bull. No. 1011, 21 p., illus., paper, 10 cents.

PERCEPTION AND PERSONALITY: A Symposium—Jerome S. Bruner and David Krech, Eds.—*Duke University Press*, 266 p., illus., $3.50. Originally published in the September and December, 1949 issues of the *Journal of Personality*, this symposium is concerned with the determinants of perceptual operation. Among the contributors are Gardner Murphy, Elliott McGinnies, Else Frenkel-Brunswik and David C. McClelland.

PHYSICAL PROPERTIES OF PLATED FABRICS KNIT OF COTTON, WOOL, VISCOSE RAYON, AND NYLON—Hazel M. Fletcher, Arnold M. Hansen, and Mary Ellen Duensing—*Gov't. Printing Office*, U. S. Dept. of Ag. Circ. No. 848, 29 p., illus., paper, 10 cents.

THE PHYSICAL SCIENCES—George S. Eby and others—*Ginn*, rev. ed., 535 p., illus., $3.36. A high school text.

PLAY WITH TREES—Millicent E. Selsam—*Morrow*, 64 p., illus., $2.00. A child's book with many experiments for both city and country children. Well illustrated by Fred F. Scherer.

PREJUDICE IN TEXTBOOKS—Maxwell S. Stewart—*Public Affairs Committee*, 31 p., illus., paper, 20 cents. A summary of an American Council on Education study. Concrete suggestions are offered for improvement of the teaching of intergroup relations at every school level.

THE PRINCIPLES OF PHYSICAL GEOLOGY—Victor E. Monnett and Howard E. Brown—*Ginn*, 450 p., illus., $4.50. An introductory college textbook.

PROCEDURE HANDBOOK OF ARC WELDING DESIGN AND PRACTICE—*Lincoln Electric Company*, 9th ed., 1200 p., illus., $2.00 (Outside the U. S.: $2.50). A reference handbook brought up-to-date.

SIX NUCLEAR PHYSICS CHARTS AND A SUPPLEMENT BOOKLET—Westinghouse School Service—*Westinghouse Electric Corporation*, $1.00 (Additional booklets may be obtained for 10 cents per copy). The charts measure 25 by 37 inches, are printed in two colors and show the basic particles of nuclear physics, construction of atoms, nuclear reactions, detection and measurement of nuclear energy and its industrial use.

THE SMITHSONIAN: America's Treasure House—Webster Prentiss True—*Sheridan House*, 306 p., illus., $3.50. An account of this museum's gigantic collections with a brief history of the institution included.

SOME SEX BELIEFS AND PRACTICES IN A NAVAHO COMMUNITY, Vol. XL, No. 2: With Comparative Material From Other Navaho Areas—Flora L. Bailey—*Peabody Museum of American Archaeology and Ethnology*, 108 p., paper, $3.00. A monograph.

SURVEY OF MODERN ELECTRONICS—Paul G. Andres—*Wiley*, 522 p., illus., $5.75. A college text for a summary course in electronics.

THE TECHNOLOGY AND CHEMISTRY OF ALKALOIDS—Frank E. Hamerslag—*Van Nostrand*, 306 p., illus., $6.50. Primarily designed to aid those engaged in the manufacture of alkaloids.

TENSIONS THAT CAUSE WARS: Common Statement and Individual papers by a group of social scientists brought together by UNESCO—Hadley Cantril, Ed.—*University of Illinois Press*, 303 p., $4.00. Discussions of the economic, political and technological conditions which produce tensions that cause wars.

TEXTBOOK OF PERIODONTIA (ORAL MEDICINE)—Samuel Charles Miller and others—*Blakiston*, 3rd ed., 900 p., illus., $11.50. A revision of a college text dealing with diseases of the tissues surrounding the teeth.

TRAILBLAZER TO TELEVISION: The Story of Arthur Korn—Terry and Elizabeth P. Korn—*Scribner*, 144 p., illus., $2.50. A short biography of a pioneer in television.

• New Machines and Gadgets •

For addresses where you can get more information on the new things described here, send a three-cent stamp to SCIENCE NEWS LETTER, 1719 N St., Washington 6, D. C. and ask for Gadget Bulletin 539. To receive this Gadget Bulletin without special request each week, remit $1.50 for one year's subscription.

⚙ *STEERABLE SLED for children, recently patented, has a horizontal steering wheel mounted at the front end which is attached to two upright rolling wheels below. Both of these have sharp edges on their outer rims to bite into the snow. The steering device is for use on sleds with one set of continuous runners.*

Science News Letter, October 7, 1950

⚙ *WARNING LIGHT for the automobile is attached on the left side near the front and flashes upward beams whenever the brake pedal is pressed. The beams are visible in all directions; pressing the pedal usually accompanies a right or left turn and also a decrease in speed.*

Science News Letter, October 7, 1950

⚙ *BOOKSHELF for automobile steering wheels, which received a patent from the government recently, will hold an open book for leisurely reading but is probably better adapted to hold a road map at which the driver may take quick glances. It can be quickly attached or detached.*

Science News Letter, October 7, 1950

⚙ *BATHTUB SEAT, with back and head rest, is an inflatable affair made of vinylite plastic with suction cups on the bottom to hold it in place. After being blown up, it*

is placed in position in the tub, as shown in the picture, and the water is then turned on.

Science News Letter, October 7, 1950

⚙ *PORTABLE RESPIRATOR, for polio patients, is made of transparent plastic with a rubber sealing element attached to the shell, and is designed to cover just the patient's chest and abdomen. Because it requires no back shield, it can be applied in half a minute.*

Science News Letter, October 7, 1950

⚙ *GLOVE HOLDER, an improved device to grasp a woman's gloves and attach them to a hand bag, can also be used to hang bag and gloves to the edge of a table in a cafe. It is an ornamental metal device, with one arm of the grasper having a pivoted extension to reach over the table edge.*

Science News Letter, October 7, 1950

⚙ *BEDSIDE NIGHT LIGHT is inside a box-like container which resembles a gold-tooled leather book and is designed to rest on a nearby table. When the cover is lifted, an electric bulb inside is lighted, and the contents, from handkerchief to sleeping tablets, become visible.*

Science News Letter, October 7, 1950

⚙ *INEXPENSIVE TELESCOPE for amateur astronomers comes unassembled but is easily put together with the aid of a screwdriver. It has a compressed cardboard tube 45 inches long and four inches in inside diameter, hardwood lens fittings and a three-inch telescope mirror.*

Science News Letter, October 7, 1950

Do You Know?

An *eclipse* of the sun was observed by Chinese in 2158 B.C.

Milk some day may be on the market as a frozen concentrate.

Persons whose *blood* might be needed for transfusions to others may some day bear tattoo marks to indicate their type of blood.

Tularemia, commonly called rabbit fever, is found in wild rabbits in the United States and in many parts of the world from Alaska to Turkey.

With long storage, *gasoline* is likely to change because it is made up of several constituents some of which are more volatile than others and may evaporate off.

Bats flying in the darkness emit ultrasonic waves, the returning echoes of which keep them from hitting obstacles; it has been known for 200 years that they do not depend on eyesight.